Biostratigraphy and paleoecology of the Upper Cretaceous – Lower Paleogene deposits of the Skole Unit of the Polish Outer Carpathians based on foraminiferal assemblages

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The studied area is located in Polish Outer Carpathians in the most external major unit of them, called Skole Unit. The basic studies are carried out in the field of the western part of the Przemyskie Foothills between localities of Dynow – Krzywcza – Bircza – Temeszow (Fig 1). This unit is composed of Lower Cretaceous to Lower Miocene deep-sea sediments accumulated in the Skole Basin, next folded and thrust northward during the Miocene.

In many places around the world the Cretaceous – Paleogene boundary has been accurately determined on micropaleontological analyses based mainly on occurrence of planktonic and benthic foraminifers as well as calcareous nannoplankton, ostracods, dinoflagellates, pollen and plants disputes in deep-sea sediments. Also, the Cr/Pg boundary studies are carried out in deep-sea sediments of two regions of the Polish Carpathians. The first one is located near Rzeszow and the second one near Dynów (Fig. 1). Both will provide one comparative summary.

Studies were focused on interval which could contain the Cretaceous - Paleogene boundary. These are sediments of Ropianka Formation in older literature known as Inoceramian Beds. Ropianka Formation is composed of "flysch" (turbidite) deposits which include sandstones, mudstones and thick layers of grey and grey-bluish marls, etc. For foraminiferal studies the most valuable are the hemipelagic and pelagic deposits which contain the most autochthonous, rich, well-preserved planktonic and benthic foraminiferal assemblages. These assemblages allow to determine the age of this boundary to the biostratigraphic biozones resolution and to estimate depositional environment, basin paleobathymetry as well as to observe microfaunistic changes before and after the latest Maastrichtian extinction.

Samples were subjected to mechanical disintegration in the sludging laboratory at the Institute of Geological Sciences at the Jagiellonian University in Krakow using Glauber's salt (sodium sulfate) and liquid nitrogen. Rock disintegration with liquid nitrogen is a new method (Remin *et al.*, 2012) which gains increasing popularity in micropaleontological laboratories. It allows reducing the disintegration time up to two hours and leave less residue. The old method by using Glauber's salt could took up to 1-2 months to it full disintegration (it depends on the type of rock and strength of cementation).

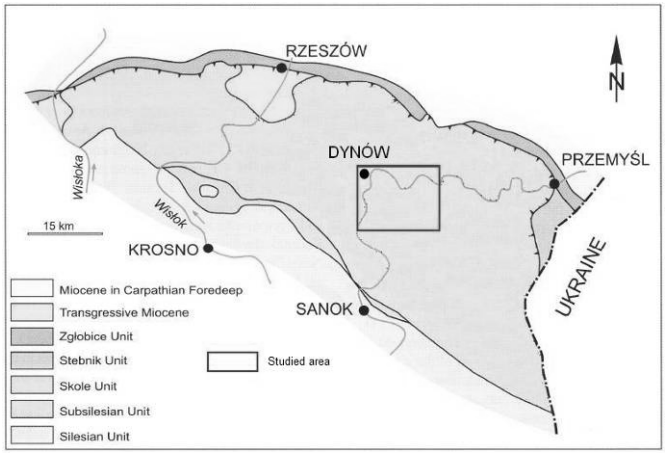

Fig.1.: The studied area of the Skole Unit in the Polish Carpathians (after Zytko *et al.*, 1989; Rajchel 1990; Barwicz-Piskorz & Rajchel, 2012, modified)

On the basis of a very well-preserved and diversified planktonic and benthic foraminifer species the interval of the Maastrichtian - Paleocene boundary occurrence has been narrowed down in Rzeszow region to 40 centimeters (Gasiński & Uchman; 2009, 2011). Therefore, the Dynów region has been selected to recognize such boundary event, hoping to establish in the studied sections more narrow and precise the Cretaceous/ Paleogene boundary.

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